CLAIMS

1.   A system for resolving a first address type and value to a target address type and value in a network, comprising a computer-readable medium encoded with:

a data structure comprising a hierarchical directory including a plurality of nodes in a tree structure, each node being a directory scope representing a hierarchical level within the network and address mapping elements defining address mappings; and

a plurality of executable methods including:

a method for attempting to resolve the first address type and value to the target address type and value in a first node at a first hierarchical level.

2.   The system as recited in claim 1, wherein the plurality of executable methods further comprises:

when the first address type and value cannot be resolved to the target address type and value in the first node, a method for attempting to resolve the first address type and value to a first intermediate address type and value in the first node; and

a method for attempting to resolve the first intermediate address type and value to the target type and value in a second node at a second hierarchical level, higher than the first hierarchical level.

3.   The system as recited in claim 2, wherein the plurality of executable methods further comprises:

when the first intermediate address type and value cannot be resolved to the target address type and value in the second node, a method for attempting to resolve the first intermediate address type and value to a second intermediate address type and value in the second node; and

a method for attempting to resolve the second intermediate address type and value to the target address type and value in the first node.

68383.4

4. The system as recited in claim 3, wherein the plurality of executable methods further comprises:

when the second intermediate address type and value cannot be resolved to the target address type and value in the first node, a method for attempting to resolve the second

5 intermediate address type and value to a third intermediate address type and value in the first node; and

a method for attempting to resolve the third intermediate address type and value to the target address type and value in the second node.

10 5. The system as recited in claim 4, wherein the plurality of executable methods further comprises:

when the third intermediate address type and value cannot be resolved to the target address type and value in the second node, a method for attempting to resolve the third intermediate address type and value to the target address type and value in a third node at a third

15 hierarchical level, the third hierarchical level being higher than the first and second hierarchical levels.

6. The system as recited in claim 5, wherein the method for attempting to resolve the third intermediate address type and value to the target address type and value in the third node

20 comprises:

a method for attempting to resolve the third intermediate address type and value to a fourth intermediate address type and value where the third intermediate value and the fourth intermediate value have a common prefix; and

a method for attempting to resolve the fourth intermediate address type and value to the

25 target address type and value.

7. The system as recited in claim 1, wherein the plurality of executable methods further comprises:

68383.4

a method for attempting to resolve the source address type and value to the target address type and value in a second node at a second hierarchical level higher than the first hierarchical level when the source address type and value cannot be resolved to the target address type and value in the first node.

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8.   The system as recited in claim 1, wherein the plurality of executable methods further comprises:

a method for attempting to resolve the source address type and value to a first intermediate address type and value in the first node when the source address type and value

10   cannot be resolved to the target address type and value in the first node; and

a method for attempting to resolve the first intermediate address type and value to the target address type and value;

wherein the first intermediate address value and the target address value have a common

prefix.

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9.   A method of resolving a first address type and value to a target address type and value in a system including a data structure comprising a plurality of address types and respective values mapped to one another in a hierarchical structure including at least a first hierarchical node at a first hierarchical level, the method comprising the steps of:

20   (a)   attempting to resolve the first address type and value to the target address type and value in the first hierarchical node; and

(b)   when the attempted resolution in step (a) is not successful at the first hierarchical node, attempting to resolve the first address type and value to an intermediate address type and value in the first hierarchical node; and

25   (c)   attempting to resolve the first intermediate address type and value to the target address type and value in a second hierarchical node at a second hierarchical level.

68383.4

10.   The method as recited in claim 9, further comprising the steps of:

when the first address type and value cannot be resolved to an intermediate address type and value in the first hierarchical node, attempting to resolve the first address type and value to a first intermediate address type and value in a second hierarchical node.

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11.   The method as recited in claim 10, wherein the step of attempting to resolve the first intermediate address type and value to the target address type and value in the second hierarchical node includes the steps of:

when the first intermediate address type and value cannot be resolved to the target

10   address type and value, attempting to resolve the first intermediate address type and value to a second intermediate address type and value; and

attempting to resolve the second intermediate address type and value to the target address type and value in the first hierarchical node.

15   12.   The method as recited in claim 11, wherein:

when the second intermediate address type and value cannot be resolved to the target address type and value in the first hierarchical node, attempting to resolve the second intermediate address type and value to the target address type and value in the second hierarchical node.

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13.   A method of resolving a starting address type and value to a target address type and value in a system including a hierarchical directory including a tree structure, the tree structure including at least a starting hierarchical node at a starting hierarchical level, each hierarchical node including at least one address mapping set, the method comprising the steps of:

25   (a)   attempting to resolve the starting address type and value to the target address type and value in the starting hierarchical node;

(b)   when the starting address type and value cannot be resolved to the target address type in step (a), performing one of the following steps:

68383.4

(c)   resolving the starting address type and value to a first intermediate address type and value in the starting node; and

(d)   attempting to resolve the starting address type and value to the target address type and value in a second hierarichical node at a second hierarchical level higher than the first hierarchical level.

14.   The method as recited in claim 13, wherein:

(e)   when the starting address type and value have been resolved to the first intermediate address type and value in step (c), attempting to resolve the first intermediate address type and value to the target address type and value in a second hierarchical node at a second hierarchical level higher than the starting hierarchical level; and

(f)   when the first intermediate address type and value cannot be resolved to the target address type and value in step (e), performing one of the following steps:

    (g)   resolving the first intermediate address type and value to a second intermediate address type and value in the second hierarchical node; and

    (h)   attempting to resolve the first intermediate address type and value to the target address type and value in a third hierarchical node at a third hierarchical level higher than the second hierarchical node.

15.   The method as recited in claim 14, wherein:

when the first intermediate address type and value have been resolved to the second intermediate address type and value in step (g), attempting to resolve the second intermediate address type and value to the target address type and value in the starting hierarchical node.

16.   An apparatus for mapping a first address type and value to a second address type and value, the apparatus comprising:

means for storing a plurality of address types and respective values mapped to one another; and

first means for mapping the first address to the second address as a function of the stored address types and values.

17.   The apparatus as recited in claim 16, wherein the storing means comprises means for storing the address types and values in a hierarchical directory tree structure including at least a first hierarchical node at a first hierarchical level.

18.   The apparatus as recited in claim 17, further comprising:

second means for mapping the first address type and value to the second address type and value in the first hierarchical node.

19.   The apparatus as recited in claim 18, further comprising:

third means for mapping the first address type and value to a first intermediate address type and value when the second means for mapping cannot map the first address type and value to the second address type and value; and

means for mapping the first intermediate address type and value to the second address type and value.

68383.4